

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT (PCT Article 36 and Rule 70)

REC'D 27 AUG 2004

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See Notification of Transmittal of International
Preliminary Examination Report (Form PCT/PEA/416)



Applicant's or agent's file reference PPD 70067 WO	FOR FURTHER ACTION	
International application No. PCT/GB 03/02428	International filing date (day/month/year) 04.06.2003	Priority date (day/month/year) 13.06.2002
International Patent Classification (IPC) or both national classification and IPC A01N41/10		
Applicant SYNGENTA LIMITED et al.		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 6 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

 These annexes consist of a total of sheets.

- This report contains indications relating to the following items:
 - ☒ Basis of the opinion
 - ☐ Priority
 - ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - ☐ Lack of unity of invention
 - ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - ☐ Certain documents cited
 - ☐ Certain defects in the international application
 - ☐ Certain observations on the international application

Date of submission of the demand 12.12.2003	Date of completion of this report 26.08.2004
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**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/GB 03/02428**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17):*

Description, Pages

1-12 as originally filed

Claims, Numbers

1-11 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

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**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	7-10
	No: Claims	1-6,11
Inventive step (IS)	Yes: Claims	9,10
	No: Claims	1-8,11
Industrial applicability (IA)	Yes: Claims	
	No: Claims	1-11

2. Citations and explanations

see separate sheet

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International application No. PCT/GB 03/02428

1) Reference is made to the following documents:

- D1:** WO 02 19823 A (SYNGENTA PARTICIPATIONS AG ;BECKETT THOMAS HOMER (US); WICHERT REX) 14 March 2002 (2002-03-14)
D2: WO 02 21919 A (PALLETT KEN ;AVENTIS CROPS SCIENCE SA (FR); SLATER ASHLEY (GB)) 21 March 2002 (2002-03-21)
D3: WO 01 43550 A (AVENTIS CROPS SCIENCE SA ;IRONS STEPHEN MALCOLM (US)) 21 June 2001 (2001-06-21)
D4: EP-A-0 579 052 (SCHOENHERR JOERG) 19 January 1994 (1994-01-19) cited in the application

2) The present application relates to a herbicidal composition comprising a 2-(substituted benzoyl)-1,3-cyclohexadione of formula (I) and an organic phosphate, phosphonate, or phosphinate adjuvant at a concentration of less than 0.5% v/v.

3) Re Item V

3.1 Novelty (Art. 33(2) PCT)

Document **D1** discloses (cf. pg. 1, l. 1-17) the effects of different adjuvants on mesotrione formulations. The disclosed compositions comprise a diluent, which is preferably water, and may also contain additives such as buffers. Preferred buffers are some commercially available phosphate buffers (cf. pg. 4, l. 9-18), from which a mixture alkyl-p-aryl polyethoxyethanol phosphates and phosphoric acid is typically used at a concentration of about 0.5 to 4 parts. A mesotrione composition comprising this particular buffer at a concentration of less than 0.5% v/v has not been disclosed. Thus, **D1** does not anticipate the subject-matter of independent Claim 1.

Document **D2** relates to herbicidal compositions comprising a urea herbicide and mesotrione. In Example C1 a formulation has been illustrated, containing 50% w/v of a mixture of a urea herbicide and mesotrione and 0.5% w/v of ethoxylated tristeryl phenol phosphate. This formulation example anticipates the subject-matter of present claims 1-6 and 11.

Document **D3** describes in Example 1 several formulations comprising mesotrione and glyphosate or gluphosinate. However, as glyphosate and gluphosinate are not adjuvants but active compounds, the disclosure of **D3** cannot be regarded as relevant for the novelty of independent Claim 1.

3.2 Inventive Step (Art. 33(3) PCT)

D1 is considered to represent the closest state of the art for the subject-matter of the present application which is considered to be novel, namely, the subject-matter of claims 7-10. The content of claims 7-10 differs from **D1** in that the adjuvant is a phosphate, phosphonate, or phosphinate of formula II. The use of these particular adjuvants provides improved activity over the prior art compositions, as demonstrated in Example 1. The problem to be solved by the present application may thus be regarded as finding a better adjuvant for compositions of 2-(substituted benzoyl)-1,3-cyclohexanedione herbicides.

Document **D4** discloses (cf. abstract and pg. 3, l. 9-21) the properties of three groups of compounds to enhance the penetration of pesticides through the plant's cuticle, thus improving the effects of the active compound. One of these groups of adjuvants is represented by the trialkylphosphates (cf. pg. 3, l. 36-45 and pg. 4, l. 30-32), which are preferably applied at low concentrations, namely from 0.01 to 0.1% (cf. pg. 4, l. 46-48). The skilled person in the search of a better adjuvant for the compositions of **D1** would in the light of **D4**, consider trialkylphosphates as a possible solution to the problem posed. He would thus test them, arriving at compositions as claimed in claims 7 and 8. Therefore, claims 7 and 8 cannot be regarded as inventive.

However, no hint can be found suggesting that phosphonates or phosphinates are good adjuvants for herbicides. The subject-matter of claims 9 and 10 is therefore regarded as inventive.

3.3 Industrial applicability (Art. 33(4) PCT)

Is acknowledged for claims 1-11.

4) Further comments:

4.1 The meaning of the feature "optionally substituted" (cf. pg. 4, l. 19-20) in claims 1, 7, 9, and 10 has not been defined (Article 6 PCT).

4.2 The designation of the weeds in Example 1: DIGSA, VIOAR, and BRAPL does not appear to be known in the art (Article 5 PCT).

4.3 On pg. 1, l. 21-22 it is stated that the disclosures of the documents cited are "incorporated herein by reference". These documents do not appear to be essential for the

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performance of the invention as required by Article 5 PCT.

4.4 Some of the compounds of Claim 6 lack primes (') on the numbers indicating the position of the substituents on the benzoyl moiety (Rule 91(a) and (b) PCT).